The
VETERINARY RECORD
Founded by William Hunting, F.R.C.V.S., in 1888
7, MANSFIELD STREET, PORTLAND PLACE, LONDON, W.1. MUSEUM 6541
No. 48 NOVEMBER 26th, 1955 Vol. 67
Registered for Transmission as a Newspaper *Price 2s. post free*

Contagious Skin Diseases of Animals and Man*

BY
IAN MARTIN-SCOTT
Sub-Department of Medical Mycology, London School of Hygiene and Tropical Medicine, London

SINCE the beginning of time man has utilised animals to serve his needs—not only as a method of transport, and to help in cultivating the earth, but also to provide foodstuffs rich in protein content, and clothing in the form of wool, hides and fur. More recently mankind has benefited in the medical sphere by obtaining vitamins, anti-sera and endocrines from animal sources. Animals have also afforded man much pleasure in the realms of sport, and in the provision of cherished household pets. Against these benefits, however, we must offset their rôle as hosts and reservoirs of micro-organisms, which may cause diseases capable of being transmitted to man.

Any factor which causes deterioration in the health of animals must in the future reflect on the health of the public, and this is most true of contagious skin diseases.

In spite of the great differences of appearance between domestic animals and man, there is little difference in the basic anatomy and physiology of their skin. In both the skin affords mechanical protection against the outside world. This, to a large extent, is the responsibility of the epidermis, and such structures derived from it—as hair, hoofs, nails, horns, feathers and quills. In mammals the skin is not an important organ of respiration, but is the main organ for regulating the body temperature. Loss of heat by radiation is prevented by the thickness of the keratin layer and fur, and the presence of subcutaneous fat. In addition the presence of an oily secretion from the sebaceous glands, which increases its pliability, also prevents cooling of the skin. In the case of sheep this fatty substance, woolfat or lanolin, is used in many of our protective ointments to-day.

Heat loss is encouraged to a large extent by the sweat glands which vary in distribution in different animals. They are found over the whole body surface in man, horses and sheep, but are usually limited to the pads in cats, the snout in the ox and pig, and are absent in the goat and rabbit, the latter animals by dilatation of the superficial capillaries may lose heat by radiation and convection.

Skin disease of animals and humans may be secondary to systemic disease, circulatory, nutritional or of congenital origin; and in many of the less clearly understood dermatoses such as eczema, alopecia, psoriasis and scleroderma, which are common to both, there is no evidence of communicability.

The World Health Organisation of 1951 has classified the zoonoses (*i.e.* diseases naturally transmitted between vertebrate animals and man) into seven orders depending on the causative organisms *viz.*: viruses, rickettsiae, bacteria, fungi, protozoa, helminths and arthropods, and they catalogue nearly 100 diseases. Some of these are extreme rarities and only a few are endemic in Great Britain. In this paper I confine myself to discussing some of the zoonoses which occur in this country; and only those which are contagious, being transmitted by contact without any intervening agent, and result in diseases of the skin.

Bacterial Diseases

Pyococcal Infections

In veterinary parlance the conditions acne and folliculitis appear to be synonymous, and mean an inflammatory process around the ostia of a hair follicle due to bacteria or parasites. Most dermatologists use the term acne when referring to a sterile blockage of the follicles either by the formation of a comedone, or plugging due to fine oil or excretion of certain halogens. By folliculitis we mean an acute inflammation of the follicles by pyococci, usually *Staphylococcus aureus.*

The streptococcus and staphylococcus can produce acute inflammation of the skin in animals and man. especially if the natural resistance is lowered.

* Based on a paper read to The Central Veterinary Society on February 4th, 1955.

In animals such a lowering of resistance may follow abrasions of the skin as in parasitic diseases due to scratching. Under these circumstances secondary infection by pyogenic organisms is not infrequent. Under normal hygienic conditions it is uncommon for pyococcal infections to be transmitted to man by contagion. Furthermore, some of the strains of these organisms which infect animals may not be pathogenic to man. Thus in outbreaks of chronic catarrhal mastitis of cattle due to the *Streptococcus agalactiae* man is seldom affected, as this organism belongs to Lancefield Group B which is rarely pathogenic to humans.

Although pyogenic infections are seldom directly transmitted to man other bacteria which are the cause of diseases of animals may be readily transmitted by contact: such a disease is anthrax.

Anthrax

In this country anthrax is primarily an industrial hazard and human cases are only notifiable as such, but in Asia where animal husbandry methods are primitive the disease is common among herbivorous animals. It is probably one of the best known, and most dreaded of animal diseases and, according to Genest (1954), might well have been the cause of the fifth plague of Egypt.

Man may become infected by inhalation of the causative organism (Woolsorter's disease) or by ingestion through eating under-cooked infected meat; these rapidly fatal forms are fortunately rare in Britain where infection is more commonly due to inoculation into the skin. This disease occurs amongst tannery workers and through handling wool, hair and animal hides. In America (Lloyd, 1952) the importation of coarse carpet wool has caused an increase in the number of human cases, and more recently attention has been drawn to infection in Britain from imported bone meal, which is used in fertilisers and animal feeding-stuffs, as well as in the manufacture of gelatine and glue (Davies, 1953).

The causative organism *B. anthracis* holds a unique place in bacteriology in that it is an aerobic organism capable of producing resistant spores. The sporular form only occurs in unfavourable conditions, and it is the vegetative form which invades and swarms in the tissues of the infected beast, and is eliminated in secretions and excretions.

Anthrax in animals is usually due to eating infected cattle cake or allowing them to graze on infected pastures, but it may also be spread by the horse-fly (Stomoxys) abroad. Birds of prey feeding on infected carcases scatter the organisms widely, and the spores survive for a long time in the soil. Further dissemination may be aided by flooding of rivers.

In Britain the annual loss of livestock caused by a rapidly fatal anthrax septicaemia is quite considerable, but in man the annual mortality is only about two.

Inoculation of the skin in humans results in the malignant pustule. These lesions are usually single and occur on the face, head, neck and arms. Within 24 to 36 hours an inflammatory papule arises soon to be succeeded by a pustule surrounded by a zone of intense inflammation. Oedema and induration of the tissues may extend for some distance from the inoculation site and the regional lymphatic glands enlarge. Left untreated, severe constitutional symptoms supervene and septicaemia may cause a fatal termination.

Prompt diagnosis is the watch-word of treatment, and workers who are liable to be affected should be made aware of the early signs by illustrated placards. In the old days Sclavo's antiserum was used, but now antibiotics are the treatment of choice and penicillin in large doses has reduced the death-rate considerably. In fact, a report from Liverpool in 1953 reveals no deaths from cutaneous anthrax over a seven-year period by the use of penicillin and aureomycin (Christie, 1953).

Since it is primarily a disease of animals, elimination of this source would prevent infection of humans. In 1881 Pasteur showed at Pouilly-le-Fort that anthrax, which was rife in France at that time, could be controlled efficiently by the immunisation of cattle; and in countries where the disease is endemic, prophylactic vaccination has greatly reduced the incidence (Wolff, *et al.*, 1951). More immediate prevention is obtained by the proper sterilisation of imported hides, furs, hair and bones from countries where the disease is still endemic, and methods to achieve this have recently been recorded (Gordon, *et al.*, 1954).

Erysipeloid (Rosenbach)

Swine fever is most commonly found in pigs, sheep and poultry, but unlike anthrax the causative organism *Erysipelothrix rhusiopathiae* can survive in cold-blooded animals, and has been found in many sea fish.

In pigs the disease may take an acute or chronic form: the former amounts to a septicaemia associated with hypertrophy of lymphoid tissue and splenomegaly, and still accounts for many deaths among young swine in Europe. The chronic form presents as arthritis with vegetative endocarditis particularly of the mitral valve. The skin changes, known as diamond skin, may be present with either type or without any systemic disease, and consist of reddish-purple rhomboidal areas several centimetres across situated on the abdomen, legs and ears. Most table birds harbour the disease and in the United States large turkey farms have been decimated: in such epidemics the bird's comb becomes cyanotic and droops, and rapidly they die with severe enteritis.

Man is infected by inoculation of the organisms into the skin. The disease may occur in veterinary surgeons by accidental inoculation when doing *post-mortems* of infected pigs, or when injecting live cultures. It is more commonly found among fish curers, manufacturers of ground fish meal, poultry dealers and employees in slaughter-houses. In Aberdeen, it is endemic, and in a recent report, 96 per cent. of the patients were associated with the fish trade (Proctor, *et al.*, 1954).

The patient, however, may not be inoculated directly, but the organism may be carried by an intermediary host. Thus, of my last two cases one was a woman stung on the chin while watching a cricket match, and the other a child scratched on the

elbow by a cat. The usual site of the disease is on the hand and up to four days after exposure an area of erythema appears. This spreads peripherally as a sharply defined dusky red slightly elevated ridge: it is from this advancing festooned border that the organism may be cultured. The central area may become pigmented or, in the presence of secondary infection, may ulcerate.

The organism is widely distributed in nature and can be found in decaying vegetable and animal material. It seems probable that the animal and human strains are indistinguishable (Sheath, *et al.*, 1951).

Some authorities (Price, *et al.*, 1951) have drawn attention to the seasonal incidence of erysipeloid, which in the north is between June and September, whereas in the warmer London area cases are seen from April to December. As this is the season for insect activity it seems to me that in many sporadic cases such a vector is responsible. Blood-sucking insects have already been cited as the cause of the disease spreading in pigs.

The disease has occurred more than once in some fishworkers, so that in the human at least it would seem that immunity is low or short-lived. In animals, however, this is not the case, as prophylactic serum and vaccines have been used with success. The simultaneous method of giving antiserum and an attenuated erysipeloid vaccine, when the pigs are a few weeks old, appears to be the method of choice. As some pigs are healthy carriers, the organism having been cultured from their tonsils, it may be difficult to eradicate the disease completely, but by these prophylactic measures an increase of genetic resistance might be obtained.

Prevention of the disease in humans should be directed towards mechanical methods to avoid skin abrasions in the trades involved, and the suppression of fly contamination by improved sanitation. At fishing ports the dissemination of the disease by insect vectors could be curtailed by the use of netting of suitable mesh at the gutting tables.

Most strains of the organism are sensitive to penicillin (Goodwin, 1950) and with adequate dosage about half the cases clear up within a week, the remainder may take double this treatment time. In minor cases the infection may clear up spontaneously in a week or two.

Actinomycosis

In the light of recent knowledge on the aetiology of this disease it is perhaps inaccurate to include it in a paper of this type; but as it is a disease shared by domestic animals and man it will be briefly discussed.

The anaerobic organism *Actinomyces bovis (israeli)* has a world-wide distribution, and is generally accepted as the cause of the disease. Confusion still exists on the identity of certain strains, and this will continue until a very large series of bovine and human isolates are meticulously compared.

Cattle are more often affected than other herbivorous animals, and in North America it is said to be the commonest cause of contamination of carcases. The clinical appearance of " lumpy jaw " is well-known to veterinary surgeons, and the diagnosis can be confirmed by examination of pus from a sinus.

From an aetiological viewpoint there is as yet no evidence to associate the bovine and human cases, but statistics on the incidence of the disease are not readily available.

The disease in man is an occupational hazard most often found in male farm workers; and according to Porter (1951) who analysed 186 cases in North-east Scotland, two-thirds of the cases present with lesions in the cervico-facial region. This organism has been cultured from mouths of apparently healthy people, and the disease not infrequently follows dental extraction or tonsillectomy. It seems logical, therefore, to presume it is endogenous, and gains entrance into the soft tissues after trauma in the case of humans. Might a similar theory not be applicable to animals after chewing sharp grasses or thorns? The high incidence in farm workers might in part be due to their lower standard of dental hygiene, combined with the common habit of straw chewing, as the source of trauma.

Last month I saw a case in an urban housewife who developed an actinomycotic granuloma beneath the angle of the jaw where there was a carious molar and slight gingivitis. On pursuing the possible cause of trauma I learnt that she had the unusual habit of chewing millet seeds, which themselves were quite uninfected.

The disease does not now have a high mortality rate and in 1952 only 12 fatal cases were notified, whereas 10 years previously when antibiotic therapy was in its infancy the death rate was 71. Most cases respond to massive doses of penicillin.

Virus Diseases

Skin diseases due to the pox-group viruses may be transmitted from domestic animals to man by direct contact. These include cowpox, milker's nodules and contagious pustular dermatitis or orf.

Cowpox

As the name suggests this is primarily a disease of cattle and appears as hard, warty, inflamed nodules on the teats. The course of the disease in man varies with the immunity of the individual, which may be solid and complete by previous exposure or partial following vaccination.

In the susceptible the primary sign is an umbilicated vesicle which soon becomes pustular, and finally forms a scab in about two weeks: it may be associated with regional adenitis and fever. The lesions may be single or multiple and in patients with eczema may produce a generalised eruption by auto-inoculation.

The causative virus is similar, but not identical, to that of smallpox; and can be differentiated by the appearances when it is grown on the chorio-allantoic membrane of a fertile egg.

Milker's nodules

Towards the close of the 18th century, while working on the immunity obtained from cowpox vaccination, Sir Edward Jenner recognised a " false cowpox " which would not produce a true vaccinia in humans. This was later called Para-vaccine by von Pirquet, and is now usually referred to as milker's

nodules. Experience has shown that vaccinated persons are still susceptible; and others, who have suffered from milker's nodules, do not have immunity to cowpox. Bonnevie (1937) also showed that persons who had suffered from the condition, when vaccinated, got a typical " take " reaction; he was further able to produce cowpox by inoculation of cows suffering from milker's nodules.

These facts indicate that the virus is not identical with that of vaccinia, and in more recent years, using an electron microscope, the virus has been isolated on an eight-day-old chick embryo. By scarification the disease was then transmitted to a cow (Findlay, *et al.*, 1952).

The lesions on the cow consist of warty scabs and raw areas which are of little consequence to the animal's welfare unless they become secondarily infected when mastitis may occur.

It is most contagious and can spread through a herd by infected handling or milking machines. It is endemic in Europe and Russia, but a rarity in America: in Britain it is probably much more common than one would imagine, as many patients do not seek medical advice.

The lesions in man are usually multiple, affecting the thumb and forefinger, and start as a small red papule 7 to 10 days after exposure. This enlarges quite rapidly into a dome-shaped, pea-sized, purplish, firm nodule, which may become umbilicated centrally. Later the nodule appears grey and translucent surrounded by a dark red halo. Usually painless resolution takes place in a few weeks. If they become infected ulceration may occur which calls for antiseptic or antibiotic applications.

Sonck (1951) has drawn attention to secondary eczematous eruptions which may appear on the arms of patients suffering from milker's nodules.

Orf

Contagious pustular dermatitis or contagious ecthyma is another virus disease well known to sheep farmers in South Scotland and North England, and it is also prevalent in Australia.

The condition can effect sheep and goats but is more commonly seen around the mouth, nostrils and eyes of lambs. The eruption is firstly papulo-visicular, but soon becomes crusted and pustular. Epidemics occur in spring and summer, and as the affected lambs have difficulty in suckling they may become emaciated or even die. The disease, however, is seldom fatal and tends to heal up within a month or so.

Man becomes infected by direct contact, especially if the skin is abraded, and often when trying to bottle-feed infected lambs. The primary lesion appears three to seven days after inoculation and resembles a pustule with a hyperaemic halo. Later the central white area resembles a blister, but contains semi-solid material. Pain may be experienced and regional adenitis may occur, but usually there is no systemic upset. The lesions in man take one to two months to resolve spontaneously, and he acquires a partial immunity. In severe cases antibiotic therapy is indicated.

The causative virus has been isolated from man (Blakemore, *et al.*, 1948) and found to be morphologically and immunologically identical with a well-known strain of virus from contagious pustular dermatitis (Glover U.F.).

To control this disease lambs should be vaccinated in spring, before the pasture season begins, as the disease may well recur annually on lands that have once been infected. Shepherds attending infected lambs should wear protective gloves,

Parasitic Diseases

The larger parasites which infest domestic animals such as lice, fleas, keds and ticks are not of great importance to man as a source of skin disease, though lice and ticks may act as vectors of systemic virus diseases.

The principal genera of mites which affect animals are *Sarcoptes*, *Psoroptes*, *Chorioptes*, *Otodectes*, *Notoedres* and *Demodex*, but by good fortune most of these have a definite host specificity and few are capable of adapting themselves to humans.

The genus *Sarcoptes*, however, is capable of infecting man. Many species of this genus are listed, but probably they are anatomically identical and only differ biologically in their inability to survive for long on another member of the animal kingdom. It is said that animal scabies in humans is a short-lived infestation. but this has not been my experience in cases infected by a puppy suffering from sarcoptic mange; though a case from a pig did make a more rapid recovery. Another animal source of scabies in the human is the cat (*Notoedres cati*). This parasite can be differentiated anatomically from *Sarcoptes*.

The diagnosis of scabies in man when of animal origin is not always easy as burrows and vesicles are absent, and often only excoriated papules are seen. Patients complain of generalised irritation made much worse by warmth which, of course encourages the activity of the mites: and it is confirmatory evidence if the suspected animal is found to be infected. A type of scabies called Norwegian scabies causes extensive scaling and crusting in humans, and is most infective. It would seem to be comparable to the psoroptic mange of horses and sheep, but there is no evidence that the causative mite differs from *Sarcoptes scabiei hominis*.

Demodectic mange can occur in cattle, sheep and goats but is more common in dogs. This disease is not transmitted directly to man, but in humans this mite is often found in the sebaceous gland ducts. It is usually considered in humans to be a harmless parasite, but occasionally may produce a light brown papular eruption. In a case of mine a young woman complained of a light brown patchy papular and follicular eruption of the face which I thought might be a tuberculous type of acne. Systemic investigations were negative so I excised a papule. Microscopically sections showed several follicles choked with demodex folliculorum. The condition cleared up on the application of a cream containing 25 per cent. benzyl benzoate. This seemed to add some support to the demodectic cause of the eruption.

Rat mites such as *Liponyssus bacoti* may cause localised pruritis and urticarial wheals in man as well

as carrying the virus of typhus. Another mite carried by the brown rat *Hypoaspis fenilis* (Meguin, 1875) appeared to be the cause of a small outbreak of generalised pruritus amongst workers shovelling imported pulverised grass. The mite was kindly identified for me by the British Museum of Natural History. A similar outbreak occurred in 1945 when the mite was discovered in the straw of mattresses (Hill, *et al.*, 1945). Other mites from bulbs, copra and cheese may affect man but not animals.

Although there is no evidence of direct transmission from animals to man the larvae of Trombidia mites (Harvest mites) can cause intense irritation in both. Infection occurs by walking over stubble in fields after the harvest has been reaped in late summer or autumn, and usually the pruritus is confined to the legs. As the larva must leave this temporary host to moult, the disease only lasts a few days and responds to the application of benzyl benzoate emulsion.

In domestic animals parasites are fairly easily found by direct smears, sedimentation and sugar flotation methods, but where several different types infest one animal it may be difficult to identify the parasite responsible for the skin condition. It is fortunate that many efficient parasiticides are marketed.

Ringworm

Unlike the insect parasites ringworm fungi of primarily animal origin show considerable host adaptation, and thus mycotic infections transmitted from animals to man show little tendency to undergo spontaneous cure. Furthermore, unlike some of the virus and bacterial infections no discernible immunity is enjoyed by man after he has suffered from infection, nor can protection be afforded by methods destined to stimulate the production of immune bodies.

In spite of these facts, while considerable attention has been directed towards bacterial and virus diseases, it is only very slowly during the last 10 years that much impetus has been forthcoming to study the relationships between animal and human mycoses.

Veterinary practitioners have long been aware that skin diseases of animals may be caused by fungal infection, but also they are alive to the fact that similar clinical features may be caused by non-fungal agents: the differential diagnosis may be difficult as it sometimes is in humans.

Ringworm infection in animals usually results in the appearance of discs where the hair is lost and the surface presents scales and crusts—the patches often remain discrete. The common distribution and appearances of the lesions have been tabulated by Georg (1954). Broken hairs are found in the bald areas and microscopic examination of these and scales should confirm the diagnosis. When the specimen is cleared by mounting it in a 20 per cent. solution of potassium hydroxide, the scales may reveal branching septate hyphae breaking into arthrospores; and the hairshafts may be ensheathed in a mass of small spores with hyphal elements recognised within the hairshaft. The exact species can only be ascertained by its characteristic features and behaviour on selected culture media, and this is a job for a mycologist in a properly equipped laboratory.

While some fungi are primarily or exclusively human pathogens, others attack both animals and man indiscriminately. Our interest lies with the latter group, which includes several of the *Microsporum* and *Trichophyton* species. Very broadly speaking the small spore fungi more commonly affect animal pets and children, whereas *Trichophyton* infections are more usually encountered in farm animals and country folk.

In urban districts only a small proportion of ringworm infections in the human are of animal origin, and epidemics of scalp ringworm in children are more frequently due to the human type of infection (*M. audouini*). In certain cities such as Leeds, however, *M. canis* infections have predominated as the cause of tinea capitis and tinea circinata in schoolchildren. In that city a campaign was undertaken to track down the animal sources. Dogs and cats were examined under Wood's light, which causes the infected hairs to fluoresce a brilliant yellow-green colour, and so animal reservoirs could be controlled. In this pioneer field work La Touche (1952) discovered the rather disturbing fact that 26 out of 30 apparently quite healthy cats and kittens harboured microsporosis, which shows how useless it is to attempt to exclude *M. canis* infections without the aid of Wood's lamp.

Even although a gradual fall in the notified cases of scalp ringworm in children is recorded in the Annual Report of the Chief Medical Officer for the Ministry of Education, there is no statistical evidence to prove a decline in the incidence of infections of animal origin, and Walker (1950) has drawn attention to the spread of animal microsporosis from child to child for several transfers of infection.

M. gypseum is an uncommon cause of fungus infection which can be transmitted from domestic animals to man. This organism, however, is of great interest as it has been recovered from soil and flower shop humus by Gordon (1953) using a special membrane filter, and was also responsible for an outbreak of ringworm amongst nurserymen in Bedfordshire described by Whittle (1954). It would seem probable that the ultimate source of this organism is in the soil and man may be infected directly or through animals.

Lastly *M. equinum*, which may affect the horse and man, is a rare species and some workers consider it to be a variant of *M. canis*.

The trichophyton fungi capable of being transmitted from animals to man are *T. discoides*, *T. mentagrophytes*, *T. equinum* and *T. quinckeaneum*. The latter causes mouse favus and is thought by Gordon (1951) to be identical with *T. mentagrophytes*: this writer also draws attention to the fact that the fungus responsible for human favus has also been found in animals.

In this country and Canada (Blank, 1953) *T. discoides*, a large-spored ectothrix fungus, is probably the commonest cause of animal trichophyton infections in man. Cattle are the usual animal source and the infection is more common in winter time. Young calves may clear up spontaneously when they go out to pasture in the spring.

In humans the disease may present as kerions or tinea circinata. If the lesions are multiple and occur on the glabrous skin the inflammatory reaction is

more superficial and small erythematous discs studded with fine pustules are found. When single, and more especially in hair-bearing parts, kerions are deep seated with a heavy purulent discharge. This latter type invariably leaves some scarring and partial baldness. In tinea circinata no pustules are present and the scaly erythematous discs gradually enlarge and sometimes show central clearing to form annular lesions. In the last 48 patients suffering from animal ringworm seen by me 28 had kerions and 20 *T. circinata*. *T. discoides* accounted for 75 per cent. of the positive cultures. This tallies with the results of a two-years' survey on animals recently published by Ainsworth & Austwick (1955) who found all their 41 positive cultures from cattle were due to *T. discoides*, and a survey of human cases by Rook *et al.* (1954).

T. mentagrophytes also causes ringworm in cattle, horses, and many smaller animals. The infection in man presents in a similar fashion to *T. discoides*. From an epidemiological viewpoint it is of interest to remember that this organism has been cultured from dung (Muende & Webb, 1937).

T. equinum, a fungus of the faviform group, accounts for a few cases of ringworm in horses in this country. This organism accounted for one of my cases and the lesion was a superficial kerion on the cheek of a young girl. The condition cleared in three months without scarring.

Outbreaks of trichophyton infection amongst cattle spread quickly by uninfected animals rubbing against infected stalls and rubbing posts. Solomons (1954) has recently reported a *T. discoides* infection in two yearling bulls within three weeks of using a cowshed, which had sheltered infected heifers 18 months previously and had not been used in the interim.

From the aforesaid it is therefore concluded that the control of ringworm infections in animals and man requires the close co-operation of veterinary surgeons, dermatologists, mycologists and public health workers, including epidemiologists. This may often necessitate heavy financial outlay in the disinfection of cowsheds and byres but in recompense it will reduce animal and human suffering.

Conclusion

While it is true to say that human skin diseases of animal origin account for only a small proportion (probably less than 1 per cent.) of all dermatoses seen in dermatological out-patients' clinics, no doubt considerably more cases occur which do not require hospital care, and so one must presume that the total disablement time in rural areas may be quite appreciable.

Moreover, since these are skin diseases where the cause is well established they could be prevented, which course would eliminate suffering and the necessity for treatment.

Many of the conditions such as kerions cause temporary unemployment and often leave in their wake hideous scarring of visible skin, while others such as anthrax and actinomycosis may have a more serious outcome.

Farmers and their employees should be better informed on the causation and clinical features of these diseases and should strive to eliminate them by the provision of protective gloves and a higher standard of hygiene in their livestock and farm buildings. Furthermore, with the ever-increasing strength of trades' unionism, and the greater sympathy extended to claimants in our law courts of to-day, the time is fast approaching when the hard-working farmer or even the veterinary surgeon may be called to task when a young female employee claims compensation for occupational disability and perhaps permanent facial scarring.

These problems could be lessened by greater co-operation between veterinary surgeons and physicians, and of course by greater skill in the early diagnosis of skin conditions on both sides of the fence. Thus, from your point of view the innocent puppy may rise above the suspicion of the family doctor when a child in the same house has skin trouble, and likewise from the dermatologist's viewpoint the school cat may be more closely examined to exonerate its responsibility as the source of an epidemic of scalp ringworm.

Many advances have been made in this country during the last decade to increase our knowledge of the zoonoses; these are chiefly confined to improved laboratory techniques in isolating, propagating and also destroying micro-organisms. We still await, however, a large-scale field project enlisting the assistance of public health authorities including epidemiologists, entomologists, mycologists, virologists and bacteriologists to work along with veterinary surgeons and physicians. In this way some light may be thrown on unsuspected reservoirs of disease, the prevalence of micro-organisms in certain animals or districts, the rôle of insect vectors and other methods of transmitting animal diseases to man.

Only by such a concerted effort can skin diseases transmitted from animals to man be completely eradicated, and I have no doubt that the veterinary profession would rise to meet this challenge presented by some of the zoonoses, and would eliminate them in the interests of mankind.

References

AINSWORTH, G. C., & AUSTWICK, P. C. (1955). *Vet. Rec.* **65.** (5) 88–97.

ANNUAL REP. CH. INSPECT. FACTORIES 1953. H.M. STAT. OFF. 189–192.

BLANK, F. (1953). *Canad. J. Comp. Med.* XVII (6).

BLAKEMORE, F., *et al.* (1948). *Brit. J. Dermat.* **60.** 404–409.

BONNEVIE, P. (1937). *Ibid.* **49.** 164–176.

CHRISTIE, A. B. (1953). *Practit.* **171.** (1026) 673–675.

DAVIES, D. G., & HARVEY, R. W. S. (1953). *Lancet.* **ii.** (XVII) 880–881.

FINDLAY, G. H., & HAIG, D. A. (1952). *Brit. J. Dermat.* **64.** 451–455.

GENEST, PAUL. (1954). *Canad. J. Comp. Med. & Vet. Sc.* **18.** (2) 53–56.

GEORG, L. K. (1954). *Vet. Med.* XLIX (4) 157–166.

GLOVER, R. E. (1928). *J. Comp. Path.* **41.** 318–340.

GOODWIN, M. A. (1950). *Brit. Med. J.*, No. 4656. 765–766.

GORDON, M.A. (1951). *Auburn Veterin.* Fall, 1951. 14–24.

———. (1953). *J. Investig. Dermat.* **20.** (3).

———. *et al.* (1954). *Arch. Indust. Hyg. & Occup. Med.* **10.** No. 1. 14–22.

HILL, M. A., & GORDON, R. M. (1945). *Annal. Trop. Med. L'pool.* **39.** (1) 46–52.

LA TOUCHE, C. J. (1952). *Brit. Med. J.* 1081.

———, (1952). *Vet. Rec.* **64.** 841.

LLOYD, R. S. (1952). *Amer. Med. Ass. Arch. Ind. Hyg. & Occup. Med.* **6.** 421–434.

MINISTRY OF EDUCATION REPORT on Health of School Children 1953.
MUENDE, I., & WEBB, P. (1937). *Archives Derm. & Syph.* **36.** 987.
PORTER, I. A. (1951). *Brit. Med. J.* June 16th, 4719. 1360–1363.
PRICE, J. E. L., & BENNETT, W. E. J. (1951). *Brit. Med. J.* Nov. 3rd. **3.** (4739) 1060–1062.
PROCTOR, D. M., & RICHARDSON, I. M. (1954). *Brit. J. Indust. Med.* XI (3) 175–179.
REGISTRAR GENERAL'S STATISTICAL REVIEW 1952.
ROOK, A. J., & FRAIN-BELL, W. (1954). *Brit. Med. J.* Nov. 20th. 1198–1200.
SNEATH, P. H. A., *et al.* (1951). *Ibid.* **3.** (4739). 1063–1066.
SOLOMONS, BETHEL JNR. (1954). *Ibid.* Dec. 11th. **2.** 1420.
SONCK, C. E. (1951). *Act. allerjoligica.* IV. 241–251.
WALKER, J. (1950). *Brit. J. Dermat.* **62.** 239–251.
WHITTLE, C. H. (1954). *Ibid.* **66.** 353–356.
WOLFF, A. H., & HEIMANN, H. (1951). *Amer. J. Hyg.* **53.** 80–109.
WORLD HEALTH ORGAN. TECHNIC. REP. (1951). Series 40. GENEVA.

During this paper cultures of animal fungi, kindly prepared by Dr. Jacqueline Walker, were shown. The speaker expressed his thanks to the several medical colleagues, who had helped to augment his collection of colour transparencies, which illustrated the text.

Following this Paper a second was read by Mr. G. C. Brander. A discussion completed the evening's proceedings of the Central Veterinary Society.

Contagious Skin Diseases of Animals

BY

G. C. BRANDER

Cooper Technical Bureau, Berkhamsted

I HAVE approached the problem of the contagious skin diseases of animals and their relationship to man, as a public health problem, which can only be dealt with by both the veterinary surgeon and the medical authorities provided they have a full understanding of the method of spread of a disease and its relative incidence in the various countries concerned. Much has been done in the last 10 to 20 years, both in the control of animal diseases, and in the eradication of diseases which render animals a definite menace to man: the scheme for the eradication of tuberculosis is one example of the great assistance that the veterinary surgeon can give to the public health authorities.

The development of the newer insecticides has made the control of the skin parasites of animals a much simpler problem, and the time should come when parasites on the skin of animals are the exception rather than the rule. It is discouraging to know that, on many farms in Great Britain, such skin diseases as cattle mange, lice and ringworm are regarded as "normal" conditions which should exist throughout the winter months.

I have placed the main emphasis of my remarks on the fungal and parasitic diseases of animals as Dr. Scott will have covered the bacterial and viral problems.

Two important bacterial conditions are anthrax and erysipelothrix; in addition, there is glanders, caused by *Pfeifferella mallei*, which is characterised by the formation of nodules and ulcers in the lungs and also similar lesions on the skin. This disease used to be of great importance in all armies throughout the world which were dependent on the horse for transport. The development of the Mallein test as a routine intradermal test for army use, has led to the elimination of the disease from most civilised countries. The chronic skin lesions (known as "Farcy buds") appear first as nodules under the skin which rupture to produce abscesses and ulcers. Contact with these lesions can spread the disease to human beings, although the frequency of infection is not very high.

Mycotic Diseases

When we consider the mycotic diseases, there is a condition of horses, epizootic lymphangitis, which is similar in some ways to glanders and is due to *Cryptococcus farciniminosus*. This disease occurs largely in tropical countries, although we found—during the war—that it is still recognised in Italy and other Mediterranean countries. In those countries it is still quite an important problem, in horses, donkeys and mules. In the Sudan and Abyssinia outbreaks of the disease are common. Infection is passed through wounds and abrasions of the skin, and it is also possible for infection to enter the skin through the lesions caused by tick-bites. The main sites of the disease are on the hind- and fore-limbs. Lesions usually begin as a nodule, which ruptures to form an abscess. From the original nodule, the disease spreads *via* the lymph vessels to the next lymph node. During the last war, it was usual to shoot all animals affected with this disease, but, since that time, operative treatment has proved quite promising. The disease does not appear to spread readily to man.

Ringworm

Ringworm is a condition which, of course, can occur on all domestic animals.

Cattle

This is a disease which occurs most commonly during the winter months and, although commonly seen on calves, it can occur on both young and adult stock. On occasion the disease can become epidemic and all the animals in the herd may be involved to a greater or lesser extent. When this occurs, it is usual for the farmer, the farm-workers, and even the farmer's wife to develop lesions of ringworm. When the disease reaches this state radical

treatment of the herd is necessary, and local, plus psychological, treatment for the farmer and his staff. This stage is usually reached by January or February, and the farmer finds it difficult to get any of his staff to carry out proper treatment or to handle the animals.

I encountered an outbreak of this sort two years ago, in a small Guernsey dairy herd in Hertfordshire. Ringworm had first been noticed in November and, with the passage of time, more and more animals had become infected. By January the condition was endemic and animals of all ages were affected, also the farmer and his wife. The farm was first visited in January and it was found that 23 animals of all ages were affected, *i.e.*, calves, heifers, cows and the bull. The animals had been treated with various dressings, experimental and otherwise, but the ringworm was at no time brought under control.

Lesions of ringworm were found on the head, especially round the eyes, corners of the mouth, the ears and under the jaws. There were also lesions on the neck extending down to the fore-legs, on the root of the tail, down the flanks on both sides and also certain areas on the hind-legs. Many of the lesions had coalesced and, in some cases, three to four inches of skin was involved. In other cases, thick scabs had developed which were very difficult to remove. Where small individual lesions occurred they were usually present in groups of four or five. The typical lesion was a white scurfiness of the skin with marked loss of hair. Many of the animals were in extremely poor condition and had raw areas extending from the ringworm lesions.

Diagnosis

This was made by direct scrapings from the lesions and an infestation of ***Trichophyton discoides*** was diagnosed.

Treatment

The heifers were housed in a large barn which was dark and damp. The cows were running in a yard and were brought into a milking parlour for milking. The calves were kept in groups of two and four in boxes.

As the lesions were so advanced and in many cases it was difficult to assess the extent of the spread of the lesions, it was decided to clip all affected areas and remove the hair so that the extent of the infestation could be revealed.

As the animals were in close contact, it was decided to endeavour to reduce the rate of the spread by tying up all heifers individually so that there would be no contact between the animals. The buildings were thoroughly creosoted and cleaned out as efficiently as possible.

Once the animals had been clipped, they were treated with dichlorophen in spirit. The first treatment of a group of animals was carried out on January 11th.

At the second visit, treatment was again carried out so that the ringworm lesions on the animals could be thoroughly destroyed. Further visits were paid to this farm to examine the animals and to study the rate of recovery.

A visit was paid on March 8th, approximately two months after the initial treatment, and it was found that the animals had put on condition and that the ringworm lesions were well under control.

A complication of the attack was the diagnosis of chorioptic mange made from one of the scrapings, and it was evident from extensive scurfy lesions of the neck that several animals were affected with this mite. It was considered at the time that the extent of the ringworm lesions, and their appearance in many unusual parts of the body, suggested that the chorioptic mite might be acting as a mechanical carrier of the spores. To eliminate this, mite treatment with benzene hexachloride was to be carried out, but, owing to the frosty conditions that followed and the low condition of the animals, treatment of the mite was left over.

According to Ainsworth and Austwick in a survey carried out in Great Britain, cattle ringworm can be classified as of one species—*Trichophyton discoides*. The data from a survey carried out by the above authors showed that there is not necessarily a seasonal incidence of the disease, and that calves are not always the animals most affected. The disease appears to occur all the year round but the number of cases is probably greater during the winter months. This observation is similar to the finding that many external parasites maintain a nucleus of infection during the summer, and only multiply when the conditions are favourable. Another point I would like to mention here is that, where ringworm becomes widespread in a herd, I am of the opinion that the disease is probably mechanically spread by the movement of mange mites or lice.

Two points require to be emphasised about the control of ringworm in cattle:—

1. that the lesions should be thoroughly prepared by clipping out the animal, and,
2. that treatment should always be applied early; *i.e.* probably about November.

Horses

The fungus causing ringworm in horses is *Trichophyton equinum*. The lesions of ringworm in the horse are frequently seen around the saddle and girth areas; this is probably due to the spores being carried on the leather, and also rubbing; possibly perspiration caused when the animals are exercised brings about conditions favourable for the fungus to develop. It is worth noting here that, because of the site of the ringworm lesions, there can be a danger of the disease being spread to children who ride the animals bareback with bare legs.

In the Sudan there is a ringworm of horses and mules that can be so virulent during the rainy season that the animals eventually have to be destroyed.

Cats and Dogs

In the case of dogs, ringworm lesions occur only on the hairless parts of the body. The dog ringworm fungus readily attacks man, causing *Tinea capitis* and *Tinea corporis*. Children playing with such infected animals will develop the lesions.

In the case of cats, the lesions are usually found on the head, neck and chest, although in some cases

they may not be readily observed. Persons handling the cats are liable to contract the disease.

Favus occurs in the dog, cat, rat and mouse. The lesions are seen mainly around the face, ears, head and paws. Human beings again quite readily pick up the disease.

Mycotic Dermatitis (or "Lumpy Wool")

This is produced by a fungus, *Actinomyces dermatonomus*, which occurs in the wool. The disease does not occur in Great Britain, but has been recorded in South Africa, Australia, New Zealand, and South America.

Merino, or Merino-cross sheep appear to be most susceptible probably because their wool is so dense. The disease appears to be associated with excessive rainfall followed by hot sun. The early symptoms are not readily detected and a period of eight weeks may elapse before lesions are advanced. Typical lesions are thick scabs, which separate from the skin pulling out the wool. The affected areas are usually ¼ to 1½ inches in diameter and, in some cases, it is impossible to shear the sheep. The disease is highly contagious and can be readily spread through woolyards and shears. It is usual to treat affected sheep by dipping in a copper sulphate solution.

Conditions in this country which are often thought to be similar are Wool-rot and Rain-scald; both these conditions appear to be due to a multiplication of skin bacteria as a result of continual dampening of the fleece.

Parasitic Conditions

In considering parasites with relation to diseases of the skin I have, in the majority of cases, discussed those which spend the major part of their life cycle on the animal and do not—like the maggot-fly or the warble fly—have forms which live entirely off the animal.

Mange

Of the different forms of mange which affect domestic animals, the only form that is acquired commonly by human beings is sarcoptic mange. As you will know, this disease is caused by the mite *Sarcoptes scabiei*, the female of which burrows into the skin forming a tunnel in which she lays her eggs; the larvae emerge from the eggs in about three to seven days. The total life cycle of the parasite generally occupies about 10 to 14 days. The activity of the parasite causes an intense inflammation of the skin with the formation of scabs and crusts. The affected parts are usually violently itchy and the animal continually rubs so that, in addition to damage as a result of scab formation, hair is removed from the skin and the animal loses condition.

Cattle

Although sarcoptic mange in cattle is not a notifiable disease, it is quite widespread in Great Britain and it is especially common in beef breeds. The lesions are usually first seen during November and December and, in advanced cases, there will be a marked loss of hair round the tail-head, the escutcheon, the neck, head and ears, and the animal may drop very considerably in condition. In this country it is largely a disease of housed animals and the original infestation is probably carried over during the summer months by one of the cows, or the bull, and the close contact of the housing allows the infection to spread. When one visits both beef and dairy herds in this country it is often quite obvious that cattle mange is present and has been a problem in the herd for many years. The sarcoptic mite can spread from cattle to both adults and children and lesions can occur, on the face and the scalp. In some areas the condition is known as "Dairyman's Itch."

Horses

Sarcoptic mange in the horse is still a notifiable disease, but the decline in numbers of the horse in this country, and the control maintained of army horses, has reduced the incidence and, as far as I am aware, the condition has not been reported in Great Britain for some time. Again the infection can be spread from animal to man.

Pigs

Sarcoptic mange, in our experience, is very common indeed in the pig and, in some cases, the lesions can be so severe that the affected carcases will be refused at the slaughter-house. Again I would remark that it has always been considered that the pig should be an animal that rubs, and many people would consider that there was something wrong with the pig that did not spend at least some part of its day rubbing against the walls of its sty! The cause of the rubbing in the majority of cases is either pig mange or pig lice. This mange mite can be passed from animal to man.

Dogs and Cats

Sarcoptic mange occurs in the dog and lesions appear on the face, the neck and, generally, the non-hairy parts of the body. Infection, again, can spread from animal to man.

Sheep: Psoroptic mange

This condition of sheep, which is most common during the winter months, is of course controlled by the Sheep Scab Order of the Ministry of Agriculture and, fortunately, this disease is no longer present in Great Britain.

The Red Mite and Northern Mite of Poultry

Both these parasites are common in poultry houses, batteries and other methods of housing, such as deep litter, and, in addition to causing severe annoyance to poultry and a drop in egg yield, they can prove a serious problem on a poultry farm. Both types of mite are very small and the nymphal and adult stages will readily pass from animal to man, causing irritation. I have encountered two cases where a northern mite outbreak on poultry was causing a severe upset in the management of a farm. The mites were everywhere, and the farmer was finding difficulty in keeping his poultry assistants because they objected to handling the birds, and thus becoming covered with mites.

Lice

Lice occur on all animals but are generally host specific so that, although they may pass to the human

being, they are not likely to remain on the body for any length of time. On animals lice can produce considerable irritation and their movements whilst feeding may lead to much scratching and skin damage. Fortunately, benzene hexachloride will readily destroy infestation.

Keds

The sheep ked (*Melophagus ovinus*) has become a rare parasite in this country, as it is readily susceptible to both DDT and BHC. This parasite frequently caused annoyance to shepherds and sheep shearers as it would move on to the human body from a sheep being handled or shorn. Its life on the human body is short, but even one ked can cause considerable worry.

I would conclude with a plea for a greater effort to be made in the eradication of the skin parasites of animals, especially those which can produce sores and disfigurement on the human being.

THE GENERAL DISCUSSION

Mr. Oliver Jones thanked Dr. Martin-Scott and said that the responsibility for the paper was shared jointly between Dr. Martin-Scott and himself, for it had taken 17 months to get him along to the meeting. Dr. Martin-Scott had mentioned erysipeloid infection in man, but he did not hear him say whether or not the subsequent disease resulted in chronic heart or joint lesions. As to actinomycosis it was interesting to hear him say that it was more than likely that the infection was in the mouth at the time and that an injury by grass led to the entry. That might be true. It was well known in practice that actinomycosis had a high incidence in certain districts, but he did not believe it was entirely due to one form of herbage. Dr. Martin-Scott had also discussed the recovery rate from sarcoptic mange in humans and said it varied tremendously. He did not say whether the individual skin health had any bearing on this matter and he had not made the point that skin health must be achieved for secondary treatment. In his opinion the skin was a powerful disinfectant, and if its health was affected it might be more susceptible therefore, having a bearing on the recovery rate. Arising out of Mr. Brander's opening remarks he was interested in the point that fungus diseases were more apparent in winter than summer, but no mention was made that sunlight might have some bearing on the viability of spores and the fact that animals were more closely herded in winter than summer.

Mr. Kershaw said that he would like to refer to erysipelas. He had suffered from this infection which he had caught from a turkey. Perhaps had he worn rubber gloves it would not have occurred, but this was a considerable time ago and actually it was the first reported in turkeys in this country.

Referring to the disease in sheep he found that he could infect them provided a small puncture rather than an incision was made over the joint. Possibly this applied in man as well? He was interested in the chronic symptoms he might suffer from in future! He found that all stag birds in the outbreak were affected. This was borne out by American writers who also found stag birds were mostly affected and not the hens. He found that in the outbreaks in sheep, as Mr. Brander had said, it was the first batch of sheep that went through the dip that brought in the infection and subsequent batches showed 100 per cent. lameness and in some cases deaths among lambs. He would like to ask Dr. Martin-Scott whether an infected puncture wound was more likely to be followed by erysipelas infection.

Mr. Pool said that he would like to take Dr. Martin-Scott to task on the use of the word zoonoses; it was an ugly word that was easily used, but they should keep it out of veterinary discussions as much as possible. One knew what it was intended to mean, but from its derivation it was difficult to say what it did mean. *Erysipelothrix rhusiopathiae* infection was probably more important than they realised and on the human side there was an increasing range of lesions attributable to it. One example was infected fingers in whalers, contracted from injuries to the hands while handling wire cables in the conditions of that industry. He thought there were many more cases in veterinary circles than they realised. In one case a man developed a rather unpleasant varicose vein immediately after infection, and he wondered whether that could be regarded as a complication of this infection.

Mr. Roper said he had a case last year of a dog which ran a high temperature and he believed it might possibly be an early distemper case. He treated the dog with penicillin and after about 24 to 48 hours there was an intense inflammation of the scrotum. It became purple with an inflamed red margin, became necrotic and peeled off. It then healed up, the animal being kept on penicillin. He wondered whether Dr. Martin-Scott had any information on what that type of infection might be.

Mr. Le Roux said that Dr. Martin-Scott had said there was little enthusiasm shown by the veterinary profession in fungus diseases; he doubted whether the medical profession showed any more enthusiasm over fungus diseases of man in the British Isles. As to co-operation with entomologists he was glad other people seemed to realise that in the various professions, veterinary, medical, engineering, etc., there were far too many iron curtains. The iron curtain in Europe was nothing like the iron curtain between the different professions.

Dr. Martin-Scott had referred to cattle in the tropics. The reason why some breeds of cattle stood the tropics better than others was merely due to the amount of pigment in the skin. Those animals which stood a lot of heat during two or three months suffered badly when the temperature dropped.

Professor G. H. Wooldridge thanked Dr. Martin-Scott for awakening in his mind so many recollections of the conditions he referred to and the associations between animals and man. There were many points he felt disposed to enter into discussion about, and although not differing he could pick up many statements and point out other diseases not mentioned.

Dr. Martin-Scott had referred to actinomycosis in cattle and its possible origin. It was believed that in cattle it was associated with barley as the fungus was said to have found a host in barley. It was certainly a fact that far more actinomycosis was found in barley-growing districts than in other districts. Infection in the vast majority of cases was through the gums at the time of the eruption of temporary teeth. It was not at all necessary as far as he could see to have a small scratch for the channel of entry. He had found it in cattle at the age of the eruption of teeth whereas it was less common in older cattle. He had seen a number of cases in human beings in association with animals. However, he did not think there was a direct association with cattle as far as he knew. As to orf or contagious pustular dermatitis, it was a common condition in sheep and at one time they had regular outbreaks in this country associated with mastitis and gangrenous mastitis in the ewe. It was never possible to say whether the lamb got it direct from the udder of the ewe, or whether the lamb infected the udder of the ewe. Later outbreaks of orf were seen where there was little mastitis in the ewes. He could not recall outbreaks of severe mastitis without the lambs being affected with pustular stomatitis and dermatitis. Regarding the transmission of some of the parasitic diseases of animals to man, many veterinary surgeons did not take advantage of that fact as frequently as they might in making a diagnosis on skin diseases in the dog. Sarcoptic mange of dogs and other animals often affects the human contacts; he had frequently had to examine patients with mange, and had asked the owners of the pets if they showed signs of irritation on their own skins. They immediately began to rub their forearms or chests, and in many cases they had lesions of saroptic mange contracted from the dog. There was no great difficulty in diagnosing the condition. The treatment of human beings, and the recovery, in his experience, confirmed what Dr. Martin-Scott had said because the human response to treatment was of a varying degree. A dog affected might go on suffering for months, while others made a rapid recovery after one or two mild forms of treatment. With ringworm in cattle it was conveyed to farm workers more frequently than was thought. He remembered an instance on his home farm in his student days when a cowman came to him and asked him to put something on a ringworm infection. He happened to have a little red blister ointment (1 in 8 or 1 in 10) and he told him to rub that on and later he asked if it cured it and the man said, " It cured it, but I'd rather have ringworm all my life before I use that again." It should be used 1 in 50.

The difficulty of diagnosing infection could be emphasised by the case of a kitten bought for some children in Nottingham from the west country. A friend in London met the kitten and put it on the train next day. A few weeks later the kitten was a suspect, but no traces of lesions could be found. However, the children in the two different places were affected with extensive ringworm. The short evening stay in one house was sufficient to cause serious trouble. The difficulty in the earlier stages was that no lesions could be seen, but on looking through the fur " against the grain " they would see small clusters of fine powder like cigarette ash, and by taking out the hairs they could demonstrate microsporon. An easier diagnosis could be made through Wood's glass. A snag was where a patient had been previously treated with an application of ointment with a petroleum base, as it would fluoresce and the slightest trace of vaseline would mask the diagnosis and be misleading. With ringworm in dogs there had been instances in the college where humans were affected. In one case the students (two girls) who tended the dog used the same washing room as the clerical staff. The students had ringworm on their hands and arms and not long afterwards the clerical staff were affected. Infection was undoubtedly carried on the towel.

Mr. Brander had mentioned epizootic lymphangitis and wondered whether it was communicable to man; he could take it that it was not. After the South African war many cases were seen particularly among horses from South Africa; some veterinary officers were so certain that it was not communicable to man that they inoculated themselves with material from the lesions as they were satisfied that if it was glanders they would get it and if not they would not get it! Based on that rather heroic but foolish experience one could assume that it was not transmissible.

Mr. P. K. C. Austwick congratulated both speakers and said that Dr. G. C. Ainsworth and himself had just finished a Survey of Animal Mycoses for the Agricultural Research Council and had published the general aspects of the results in THE VETERINARY RECORD. A further paper on the mycological aspects was in the Press. It was not perhaps fully appreciated that dermatophytes were incidental parasites of man and animals and were really soil-inhabiting fungi which contributed to the breakdown of keratinised tissues. In the United States several pathogenic fungi have already been isolated from soil, and it seemed that man and animals were exposed to the same hazard of infection from this source. *Trichophyton verrucosum* var. *discoides*, the most frequent cause of cattle ringworm in this country, had not yet been isolated from cow-sheds or rubbing-posts which were so often incriminated as sources of infection on purely circumstantial evidence. Animals almost certainly passed on the infection to each other and to man, but our knowledge of the transmission of the disease was very scanty. The arthrospores around the bases of the infected hairs were very small (2 to 4 microns in diameter) and infection could probably originate from even one spore lodging in a hair follicle. It was estimated, too, that each infected hair might carry over 30,000 arthrospores in its spore sheath. Investigations were required into the incubation periods of animal dermatophyte infections, although it was already known that with a number of species it was about three weeks before the appearance of symptoms.

Regarding the nomenclature of the lesions, he knew little of the clinical terms, but had been confused by the application of several names to the same condition associated with the same fungus species. He was hoping shortly to be able to carry out the mycological examination of specimens for veterinary surgeons at

Weybridge. By the determination of the dermatophyte species concerned in each case, it was hoped that a basis for the more rational therapy of animal ringworm might be provided, as had already developed for the the disease in children.

The Reply

Dr. Martin-Scott replied to the previous speakers in order:

He said, in reply to **Mr. Oliver Jones,** that he personally had not encountered any human cases of erysipeloid which had subsequently developed cardiac or joint disease. If the case were untreated, he felt this might happen; but if the incidence of such sequelae was high these diseases would be more common among fish workers, and he was not aware that this was so. (Postscript references—*J. Amer. Med. Ass.* **122.** 938 (1943) and *Arch. Derm. & Syph.* **50.** 151 (1954). Regarding the incidence of actinomycosis in certain districts, he did not feel this could be gainfully discussed until the pathogenic strains in animals were more carefully identified. He repeated that though the disease was common to both animals and man, he did not group it as contagious, as so far we lacked evidence that infection could be caused by direct transmission.

In considering sarcoptic mange infections, he thought persons of unhygienic habit were more liable to become infected from animals; but this did not imply an individual skin predisposition.

In replying to **Mr. Kershaw,** he agreed that erysipeloid was more usually due to a puncture wound, but assured the speaker that he need not be apprehensive of his future health.

Dr. Martin-Scott agreed with **Mr. Pool** on the pronunciation of the word " zoonoses," but as it was concise and etymologically accurate, he did not take exception to it. He had read of the incidence of eryspeloid in the northern seaboard of America in the whaling industry, and also understood that infection usually followed some injury to the skin.

He felt that it was difficult to be dogmatic on the diagnosis of **Mr. Roper's** case, but the response to penicillin suggested that it might have been erysipeloid or a streptococcal cellulitis.

Mr. Le Roux had pointed out the great lack of co-operation between specialists in dealing with fungus diseases. He, Dr. Martin-Scott, hoped that the meeting that evening would produce greater understanding between the two professions.

He thanked **Professor Wooldridge** for the interest and enthusiasm he had shown in the subject of the evening. He was interested to learn that actinomycosis was more common in young cattle and felt this supported his theory: the eruption of teeth, by breaking the intact oral mucous membrane, would afford a portal of entry for the organism. He had not sufficient experience to say whether orf started in ewes or lambs, but most of the human cases seemed to be due to handling lambs. In the treatment of scabies he stressed the importance of applying the benzyl benzoate emulsion over the entire body surface from the neck downwards, and not only on the areas of irritation; otherwise the larvae from previously hatched eggs would be disseminated over the skin surface, and the infection would go on indefinitely. He agreed that animal ringworm infection could be carried by towels in a washing room used by infected persons, but he preferred to avoid using iodine and mercury in treatment as in some people the skin was sensitive to these applications and their use might make matters worse.

Miss Freak thanked the speakers and said that on the question of specimens most of them were at their wits' end to know where to send them. There was no failure to co-operate, but of what to send and where to send, she felt that the meeting had learned a great deal from the discussion.

UNIVERSITY NEWS

Bristol

Dr. D. E. Tribe, Lecturer in Animal Husbandry, is leaving at the end of the present term to take up an appointment as Reader in the Physiology of Domestic Animals at the University of Melbourne.

Cambridge

It is proposed to award the May & Baker Veterinary Research Fellowship in Animal Anaesthesia in the Department of Veterinary Clinical Studies at an early date. The Fellowship will be tenable for three years commencing at £850 p.a. with annual increments of £50.

Graduates in Veterinary Medicine, Medicine, and Physiology will be considered. Further particulars can be obtained on application to the Administrative Secretary, School of Veterinary Medicine, Cambridge.

R.C.V.S. EXAMINATIONS

December 8th, Thursday.—M.R.C.V.S. Written Examinations.

December 9th, Friday.—M.R.C.V.S. Written Examinations.

December 12th, Monday.—M.R.C.V.S. Practical and Orals commence (Panels " A " and " B ").

PROCEEDINGS OF CONGRESS

As Congresses grow larger, and the subjects discussed become more numerous and more diverse, the form in which the final Proceedings should be published presents certain problems. When it is realised that as recently as 1950 seven papers only were read, while at Belfast this year 17 were presented, the pressure upon our space, in publishing this weight of material, will be understood. Accordingly, it has been decided to print the 1955 Congress Proceedings as a separate and additional number of THE RECORD, all the papers and all the discussions appearing together. This will provide the double advantage of presenting the Proceedings as a whole, while at the same time keeping our week by week issues free for authors' current work. It is hoped that this innovation will give general satisfaction to readers. The special number will appear together with the ordinary week's RECORD, on December 10th.

SYMPOSIUM ON MYXOMATOSIS

On Saturday afternoon, November 5th, the Mammal Society of the British Isles held a Symposium on Myxomatosis at the Zoological Society of London's Gardens in Regent's Park. The chairman was Dr. L. Harrison Mathews, F.R.S., Director of the Zoological Society. Different aspects of the subject were introduced by four speakers and after tea there was a general discussion.

Mr. H. V. Thompson of the Ministry of Agriculture, Fisheries and Food, Infestation Division, Tolworth, gave a brief account of the history of the disease prior to its invasion of this country in 1952 and a more detailed study of its spread in Great Britain and in particular of the development of the original outbreak at Bough Beech in Kent. Mrs. G. Lane (Miss Miriam Rothschild) dealt with the vectors. The insect of greatest importance was the rabbit flea and it was remarkable how little was known of the biology of this insect. Mrs. Lane referred to Dr. Muirhead Thomson's work, partly in collaboration with Dr. C. H. Andrewes on transmission by *Anopheles maculipennis atroparvus*. This mosquito survives the winter in the adult stage, hiding up in pig-sties and other outbuildings, but waking and feeding on warm days. Infected mosquitoes had been found in rabbitries on the Sussex coast and infection could persist in these insects for months.

Mr. J. R. Hudson described briefly the virological aspect, in particular the work done by Mr. Paterson at Wye on transmission in the absence of vectors and the investigations by Dr. W. Mansi into suspected cases of myxomatosis in mammals other than rabbits and in birds. He went on to refer to the epidemiology of the disease and mentioned the attenuated strains isolated this year in Nottinghamshire. Dr. A. S. Thomas described work that the Nature Conservancy was doing in southern England to study the effect of the reduction in rabbit numbers on vegetation. It appeared that in general there was an increased growth of leguminous plants and grasses. Some rare plants, for example, certain orchids, had shown up in numbers that were quite unexpected suggesting that rabbits had previously prevented the appearance of the flowing stem. A peculiar effect was the apparent spread of ragwort around rabbit burrows. It had been thought that ragwort, like deadly nightshade, was always favoured by a high rabbit population. Ragwort is, however, a biennial and the failure of rabbits to nip the growing point when it appeared from the rosette at the beginning of the second year probably accounts for the increase in plants seen round certain warrens this season. The increase in self-sown deciduous tree seedlings has been very noticeable.

The discussion was opened by Mr. H. N. Southern of Oxford who mentioned the apparent effect of the decreased rabbit population in restricting the breeding of tawny owls. Wood-mice in the area studied by him decreased in numbers, but later recovered. Mr. P. G. Shute gave further details of the biology of *Anopheles m. atroparvus*. He considered that since this mosquito did not feed in the open in this country it would not become infected from, nor pass infection to, wild rabbits. Mr. P. L. Shanks referred to the spread of the disease in Scotland. He was fairly satisfied that *Simulium reptans* played a part in the rapid dissemination of the disease that began in April. Dr. C. H. Andrewes gave further information on the survival of virus in mosquitoes. Dr. N. W. Moore of the Nature Conservancy mentioned the apparent effect of the reduction in rabbits in the breeding of buzzards. Although the buzzards had not bred this year in areas in which rabbits had been reduced greatly in numbers, they bred regularly in parts of Germany where there were never any rabbits and it was unlikely to be a permanent effect. He was also studying the possible effect of the removal of rabbits on the hare population. Mr. R. M. Lockley described how newly-weaned rabbits left the rest and lived out for a time. These rabbits carried few fleas and could escape myxomatosis. He referred to the destruction of rabbits by myxomatosis on Skomer where there were fleas and the failure of myxomatosis to spread when introduced some years ago to the neighbouring island of Skokholm where there are no rabbit fleas.

There were a number of other speakers including visitors from Australia, New Zealand and Tasmania.

THE SUPPLEMENT

The next edition of the Supplement to THE RECORD will close for press shortly. Honorary secretaries of Divisions and others who have material for publication are asked to be good enough to send it to the Editor, not later than December 3rd.

BIRMINGHAM CATTLE SHOW

An unusual feature of the 94th Birmingham Cattle Show, which opened on November 23rd, was the award of the championship to a Shorthorn for the first time since 1928. Thus a long run of successes by Angus cattle or their crossbreds at this show was broken.

The 185 entries in the cattle classes were an increase of 35 on last year and reflected a growing Midland preference for such southern breeds as the Devon and the Sussex. A firm, level, and well built up Devon, Sandhill Major, exhibited by Mr. A. E. Payne, of Keynsham, Bristol, won the honours in this breed's classes.

Honours for the best crossbred went to Mr. Alex H. Stobo, of Berwick-on-Tweed, for his heifer Highland Queen.

MINISTRY OF AGRICULTURE VETERINARY FIELD STAFF CHANGES

Mr. R. A. A. Beament, B.SC., M.R.C.V.S., Veterinary Officer, has been transferred from Truro to Reading. Mr. H. G. Lloyd, M.R.C.V.S., Veterinary Officer, has been transferred from Cardigan to Bedford, and Mr. J. McArthur, M.R.C.V.S., Veterinary Officer, has been transferred from Oban to Glasgow Port.

Current Literature

REPORT

Report on the Animal Health Services in Great Britain, 1954. Published by Her Majesty's Stationery Office. Price 4s.

This book reviews the work of the Animal Health Division over the past year and provides a great deal of material that is of interest both to veterinary surgeons and to agricultural workers in any way associated with animals.

The first section, dealing with outbreaks of notifiable disease, is of especial interest to veterinary surgeons in practice, and is worthy of considerable publicity both within and without the profession, partly because of the lessons to be learned therefrom and partly to illustrate the value of our whole-time veterinary staff.

In dealing with foot-and-mouth disease the report summarises briefly the findings of the Departmental Committee who were in no doubt that the slaughter policy was still the best policy for this country under present circumstances. This book provides an interesting answer to the critics of that policy by mentioning the fact that during the serious years of 1942 and 1952 there were 670 and 495 outbreaks respectively, whereas in 1871 there were 52,164 outbreaks. It further stresses the number of initial outbreaks in pigs due to contact with raw bones, and this, when looked at in conjunction with swine fever, seems to call for greater publicity to ensure the effective boiling of swill.

The chapter on outbreak of swine fever is very brief and factual, dealing largely with the number of outbreaks and the number of pigs vaccinated over the last few years, which shows a promising rise each year. It is to be hoped that further research will be able to provide an efficient vaccine at considerably less cost than the present one. Such a reduction in cost would ensure a far greater use throughout the country.

The history of the first cases of atrophic rhinitis is interesting and informative and it is desirable that the eradication policy be pursued with the utmost vigour.

The Animal Health Division has reason to be proud of the fact that a second year has gone by with no outbreaks of sheep scab, and it would seem unlikely that any recrudescence of this troublesome disease is likely to occur now.

The chapter on anthrax provides some unexpected facts and it must be rather a surprise to many to learn that in 52 out of 368 cases the carcase was cut and blood was shed ; 20 of these being on the farm, and 32 at knackeries, slaughterhouses and hunt kennels. Once again this seems to call for more publicity to all concerned in handling such carcases.

The second section is concerned largely with tuberculosis eradication and gives an extensive account of how the scheme is proceeding with details of the numbers of cattle in each area together with a map showing the status of the different areas up to the end of 1954. If the scheme continues to progress as fast in the next five years as it is doing now this map will be continually out of date.

The number of calves vaccinated with S.19 does not seem as high as one would expect although it continues to rise steadily.

In the third section an account is given of the regulations governing the importation of carcases and animal products up to 1954, with the new regulations imposed last year, setting out the reasons for so doing in a very clear way. The chapter further covers the necessity for adequate quarantine regulations to govern the importation of dogs and cats in order to protect the public against the risk of rabies ; and shows how important these regulations are by giving in a later table the numbers of rabid dogs in some other European countries.

The pages in Section IV provide the answer to those of us who frequently ask for information as to the activities of our colleagues at Weybridge and other laboratories of the Animal Health Division. These activities cover such a very wide field and are of such great interest to the whole profession that the attention of all veterinary surgeons might well be directed to the publication as a means of keeping in touch with the trend of research. For those with limited time it provides a great deal of information in a very readable form within the space of a few pages.

Research work must always seem slow to the field worker eagerly awaiting results ; but it is a little disappointing to see no very marked advance with Johne's disease, and it seems doubtful if the research being applied to hypomagnesaemia is as extensive as one would wish. With the apparent increase of this condition in ewes during the last few years it may be possible to conduct research at less cost than is the case with cattle.

A considerable portion of this book is devoted to diseases of poultry and to research into the problems of artificial insemination, and both chapters offer a substantial quantity of useful information.

The appendices are a list of tables and statistics giving actual figures of the many activities of the Animal Health Division, which make a very useful reference for anyone seeking statistics in the scheduled diseases. In general this book gives an excellent record of disease control coupled with patient research into many diseases by a team of workers who might be termed the " silent service " of the veterinary profession, but who willingly shoulder a heavy responsibility for the control of epidemic disease in this country.

J. B. W.

BOOK REVIEW

Experimental Studies in Equine Infectious Anaemia. By MIKLOS N. DREGUSS & LOUISE S. LOMBARD. Med. 8vo, 216 pp., 22 text figs., including one plate in colour. 52s. net. Published for the University of Pennsylvania Press in Britain by Oxford University Press.

The work which forms the basis of this monograph was sponsored by the Grayson Foundation of America, an independent, voluntarily supported organisation, which bears some resemblance to The Animal Health Trust in Great Britain. It was carried out between 1948 and 1953 at the University of Pennsylvania, by a group of workers headed by Dr. Dreguss.

Equine infectious anaemia is a matter of very considerable importance throughout large areas in Europe, America, Asia and has been reported from parts of Australia, North and South Africa, though its incidence varies in a complex manner from time to time. In some

places the incidence is rising and in others the incidence is unknown because of lack of scientific interest in it, or lack of facilities for its identification. In consequence, there is an enormous amount of published work on the disease, written in many languages ; 1,246 relevant references are quoted ; and the authors have sifted the whole of this work and added much original material, the result of their own investigations undertaken during the five-year period of sponsored activities.

The monograph bears the stamp of authenticity and reliability and could well form a model for monographs on other diseases of animals. To indicate the chapter headings is to indicate the scope and contents ; these are : History and Distribution ; Natural Transmission of the Infection ; Symptomatology ; Clinical Diagnosis ; Properties of the Virus ; Methods of Laboratory Diagnosis; Haematology; Haemagglutination; Pathogenesis ; Transmission to Laboratory Animals ; Cultivation of the Virus in Chick Embryos ; Immunisation Experiments ; Histopathology ; Therapy and Control ; Concluding Remarks ; Bibliography and Index.

It must not be concluded that a final elucidation of all the problems of this somewhat baffling disease has been presented. There are still many facets which require further work and study. The authors readily and modestly admit this. They say, " we laid emphasis in our studies on the experimental approach. . . . It is obvious that what is lacking for our better understanding of this malady can be best learned by experimental approach, that is, by the application of methods of investigation developed in recent years for the clarification of similar problems. . . . It is felt that . . . a definite progress was made and several unsolved problems concerning equine infectious anaemia came closer to a possible solution." And later : " We are fully aware that in our discussions we often raised more questions than we have answered. We are confident that the expansion of our findings regarding the allergic mechanism of the infectious process will contribute to the clarification of the ' mystery ' of infectious anaemia."

It will serve no useful purpose here to attempt to present a summary of the aetiology, symptomatology and control of infectious anaemia, as discussed by the authors ; those interested will find each aspect ably and straightforwardly debated. It may, however, be useful to comment upon one important finding indicated in the last quotation above—the rôle of allergy in pathogenesis. It had long been evident that in this disease the mechanism of infection by the virus was not the same as in many or most other virus diseases. Infection is not followed by the development of any real immunity in recovered cases. Relapses are common and a clinically healthy state in a recovered horse can quickly change to a fatal end for no apparent reason. Attempts to produce a valid and specific anti-serum have failed. The authors' work throws light on these aspects. They have concluded that upon infection the virus causes an initial mild febrile reaction. Then, in some 8 to 10 days, long after a blood-borne virus would normally have provoked severe fever, the symptoms become intensified, high fever develops and the horse becomes notably ill. They explain this by suggesting that the virus first acts upon the blood cells within the vessels and upon the reticulo-endothelial elements. Many of these are broken down releasing a series of breakdown products, which act as foreign proteins typically do, producing an allergic state. Red cells pass through the already damaged capillary walls producing the characteristic small petechial haemorrhages especially in parenchymatous organs, notably the liver, and necrotic or degenerative processes result. The onset of the more severe symptoms of fever, anaemia, hypoproteinaemia, oedema, urticaria, etc., coincide with the development of the allergy. Thereafter, the normal local defence mechanisms come into play and the damaged areas are invaded at first by polymorphs, macrophages, eosinophils, and when this phase ends an intense lymphocyte infiltration continues in a vain attempt to build up a barrier of resistance. Then to quote : " The lymphatic cells which take part in the excess antibody production, react in the infiltrated tissues locally (allergic inflammation) when the infectious process is re-activated. If the horse does not succumb . . . the virus is not eliminated from the body, rather it seems to co-exist with the antibody indefinitely. Thus the process repeats itself and renewed attacks occur until the animal reaches a partly or wholly balanced stage of desensitisation " and eventually a resistant virus carrier is produced.

These findings are supported by good histopathological evidence and if accepted (more work requires to be done) go far to explain the unorthodox features of this disease.

No apology is offered for indicating very briefly what may well be a major finding in so far as some virus diseases in the horse are concerned. It is to be hoped that these results may stimulate others to pursue these investigations further.

Equine infectious anaemia has not been recognised up till now in Great Britain. With the development of increasingly rapid transport of horses by air to and from Europe and America, it is impossible to know whether the immunity of British horses so long enjoyed will continue or not.

The monograph can be fully recommended to all who have an interest in viruses or horses. Nothing so comprehensive is available elsewhere. The few minor errors and an occasional disappointing figure are not worth more than passing mention.

WELLCOME MUSEUMS OPENED

Sir Henry Dale, O.M., F.R.S., chairman of the Wellcome Trustees, yesterday formally opened the Wellcome Museums at the Royal College of Surgeons of England. Erection of the museums was made possible by the gift of £100,000 to the college by the Wellcome Trustees in recognition of the service rendered by the college to medical and scientific knowledge by maintenance of its museums of human and comparative anatomy and pathology.

News and Comment

A CHRISTMAS APPEAL

On another page we publish a letter from the principal officers of the Victoria Veterinary Benevolent Fund. It appeals, among other things, for new subscribers, and it is to be hoped that a large response will be forthcoming. With every year that passes the cost of benevolence increases. Indeed, just to maintain in real terms the assistance given, apart from any hope of increasing it, throws a growing burden upon the Fund and every similar organisation in the country.

As is well known—though all too frequently ignored in official circles—the plight of members of the professional and middle classes who have fallen upon difficult times is a particularly distressing one. Many of them feel debarred for reasons of justifiable personal pride from seeking certain forms of State assistance, or even from making their hardship known at all. We believe our readers would agree that it is unseemly for widows and other dependants of those formerly engaged in a learned profession to be forced to reveal their indigence. Such a state of affairs need not arise if the Fund's appeal is answered promptly and with generosity.

INAUGURAL MEETING OF R.V.C. OLD STUDENTS' ASSOCIATION

A meeting of past and present students and members of the staff of the Royal Veterinary College was held at the College on the afternoon of November 11th. The time and venue were chosen to coincide with the Ball. The following attended:—

C. Boyde, Miss Joan Chaplin, H. G. Silcock, S. L. Hignett, E. F. Lewis, S. Edwards, J. Stratten, C. A. Finn, C. L. Hambrook, M. Stalbow, D. Abrahamson, J. E. T. Jones, F. R. Bell, E. Cotchin, L. P. Stafford, Miss Olga Uvarov, Professor J. McCunn, J. C. Whitney, E. K. Price, P. L. Hitchcock (student) and Michael Creek (student).

The object of the meeting was to consider the desirability of establishing an old students' association or society.

Mr. Whitney opened the proceedings by giving an account of the preliminary work done by Dr. Bell, Mr. Cotchin, Mr. Lewis and himself and the response which had resulted from their contacts with all potential members of an Old Students' Association. The response had been very substantial and gratifying and in consequence they had arranged this meeting. The provisional committee thought that the time had come when they could ask those who had assembled in response to their invitation to decide if an Old Students' Association should be founded and if necessary take the steps to establish a constitution.

Mr. Whitney, Dr. Bell and Mr. Lewis were thanked for the work they had done, and Professor McCunn was then asked to preside over the meeting.

He said that the first point to be decided was, should steps be taken to form an Old Students' Society? By unanimous response this was resolved. The title was to be The Royal Veterinary College Association. Past students of the College and past and present members of the academic staff would be eligible for membership. The possibility of honorary membership was postponed to a later date when the Association has been established and consolidated.

With regard to a council and officers, it was resolved that there be:—

A Patron who shall be the Principal of the College in office at the time; a President; two vice-Presidents; an honorary secretary; an honorary assistant secretary; a treasurer; a Council of six, four to be elected from amongst the members, and two to be nominated by the Students' Union Society. Officers and members of Council to be elected for a period of two years.

It was next resolved that the Annual General Meeting should be held at the Royal Veterinary College on the day of the Commemoration Ball. There should be at least one other meeting in the spring or early summer. This meeting might be of the nature of a social and/or academic meeting as the Council should decide.

The meeting then proceeded to elect the following officers for the year 1955/6:—

Patron: Mr. R. E. Glover; *President:* Professor J. McCunn; *Vice-Presidents:* Dr. S. J. Edwards and Mr. S. Hignett; *Hon. Secretary:* Mr. J. C. Whitney; *Assistant Hon. Secretary:* Mr. E. K. Price; *Treasurer:* Mr. H. W. J. Adams; *Council:* Mr. H. G. Silcock, Miss O. Uvarov, Mr. M. Stalbow and Dr. W. R. Wooldridge.

LEGAL NOTE

A case of interest to the profession was heard at Guildford County Court on November 17th. Mr. D. B. Underwood, M.R.C.V.S., claimed the sum of £75 18s. 11d. professional fees from Mr. D. J. Glanfield, a farmer of Windlesham. The case was brought because the defence would not agree to the veterinary surgeon's fees and alleged overcharging for drugs supplied. Judge A. A. Gordon Clark gave judgment in favour of Mr. Underwood. In so doing His Honour made it clear that the judgment referred to the case before him and that it should not be taken that he was pronouncing upon a general principle.

The plaintiff's solicitor pleaded that in professional charges made by Mr. Underwood, the cost of drugs could not be divorced from the professional services involved, and this view was upheld. Expert evidence was given to the effect that Mr. Underwood's professional charges were moderate to the point of generosity; it was further stated in evidence that he had, on a number of occasions, minimised his charges or given substantial credit at the farmer's request.

For the defence, it was pleaded that no objection was made to the charges for professional service, the sole objection resting upon the alleged overcharging for the drugs. As already stated, this view was not accepted and Mr. Underwood was awarded his fees and the costs of the action. In the course of the hearing the Judge said it might or might not be useful in avoiding future cases of this kind if a professional authority could lay down a scale of charges for those drugs not available through retailers.

SECTION OF COMPARATIVE MEDICINE, R.S.M.

This Section of the Royal Society of Medicine will hold a special meeting at the Royal Veterinary College on December 14th at 5 p.m. Tea will be served half an hour before the meeting, whose subject will be "New Apparatus and Methods of Interest in Anaesthesia, Respiration and Resuscitation."

Three films will be shown: Cardiac surgery in the dog under hypothermia, by Dr. B. A. Cookson; Caesarean section in the cow, by Professor Formston; and Anaesthesia in wild animals, by Mr. Oliver G. Jones. Numerous demonstrations, given by experts in the respective fields, will follow. In view of the fact that workers from all parts of the country will be taking part in this special meeting the honorary secretary of the Section commends it to all those interested in the fields of work covered by the title, and especially to members of the anaesthetics Section.

THE ROYAL COLLEGE OF VETERINARY SURGEONS

List of Successful Candidates, Animal Management Examination, November, 1955

Dublin

Boothman, J. H.; Carroll, Denis; Downey, J. S.; Flanagan, J. P.; King, M. B.; Lynch, M. E.; Marray, E. A.; Monahan, M. G. B.; O'Brien, Patrick; O'Connell, John; O'Neill, Conal; Reidy, D. F.; Welsh, J. C. M.

List of Successful Candidates, Pharmacology Examination, November, 1955

London

Howse, J. N.; Jones, W. A.; Nettleton, L. B.

Dublin

Atock, M. A.; Byrne, C. J.; Carroll, Denis; Crowe, J. F.; Downey, J. S.; Doyle, I. M.; Flanagan, J. P.; Hoban, G. P.; King, M. B.; Monahan, M. G. B.; O'Brien, Patrick; O'Connell, John; O'Neill, Conal; Osborne, Michael.

THE REGISTER OF VETERINARY SURGEONS

The name of Mr. Thomas Coe, of 39, Shandon Park, Knock, Belfast, has been restored to the Register of Veterinary Surgeons.

PERSONAL

Births

BUTLER.—On November 9th, at Nakuru Hospital, Kenya, to Trudy, wife of Michael C. Butler, B.SC., M.R.C.V.S., P.O. Box 70, Thomson's Falls, Kenya, a son, Peter Cawood.

FELGATE.—On November 13th, 1955, at King's Lynn, to Annette, wife of C. A. G. Felgate, M.R.C.V.S., of 43, Mair Road, West Lynn, Norfolk, a sister for Wendy.

DUQUID.—On November 20th, 1955, to Elizabeth, wife of Ian M. Duquid, B.SC., M.R.C.V.S., 3, North Parade, Lincoln, a daughter.

MACK.—On November 19th, 1955, at Woking, to Doreen, wife of Roy Mack, M.R.C.V.S., of the Commonwealth Bureau of Animal Health, New Haw, Weybridge, Surrey, a daughter.

Engagement

AITKEN—ARTHUR.—The engagement is announced between George, younger son of the late Mr. M. T. Aitken and of Mrs. Aitken, of East Kilbride, Lanarkshire, and Betsi Margaret, elder daughter of Dr. and Mrs. G. Kilpatric Arthur, of The Oaks, Fakenham, Norfolk.

Marriages

SANDERSON—COOPER.—At Bourtie Church, Oldmeldrum, on November 19th, 1955, John Sanderson, M.R.C.V.S., The Braes, Oldmeldrum, to Margaret Cooper, B.SC., Shadowside, Inverurie.

BOYD—WOLF.—At Dreieinigkeitskirche, Munich, on October 20th, 1955, Hugh Boyd, V.M.D., (Stockholm), M.R.C.V.S., younger son of Dr. and Mrs. William Boyd, Mauchline, to Renate Wolf, elder daughter of Herr and Frau Edgar Wolf, Ottobrunn, Munich.

COMING EVENTS

November

30th (Wed.). Meeting of the Southern Counties Division, B.V.A., at Salisbury, 7.30 p.m.

Meeting of the West of Scotland Division, B.V.A., in St. Enoch's Hotel, Glasgow, 2.30 p.m.

December

1st (Thurs.). General Meeting of the Central Division, B.V.A., at the Royal Veterinary College, Camden Town, N.W.1, 6 p.m.

2nd (Fri.). Ordinary General Meeting of the South Wales Division, B.V.A., at the Park Hotel, Cardiff, 2 p.m.

5th (Mon.). Annual Dinner of the Centaur Society, University of Bristol, at the Hawthorn's Hotel, Bristol, 7 p.m.

8th (Thurs.). Annual Joint Meeting of the Sussex Veterinary Division, B.V.A., and the Brighton and Mid-Sussex Division, B.M.A., in the Hotel Metropole, Brighton, 6.30 p.m.

9th (Fri.). Dinner and Dance of the North Wales Division, B.V.A., in the Imperial Hotel, Llandudno, 7 p.m.

14th (Wed.). Special Laboratory Meeting of the Section of Comparative Medicine, R.S.M., at the Royal Veterinary College, Royal College Street, Mornington Crescent, N.W.1, 4.30 p.m.

January, 1956

6th (Fri.). Annual Dinner and Dance of the North Wales Division, B.V.A., in the Imperial Hotel, Llandudno, 7 p.m.

ADDRESSES OF DISEASE INFECTED PREMISES

The list given below indicates, first, the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreak.

Anthrax

Derby. Ridgeway Farm, Repton (Nov. 15).

Dorset. Shatcombe Farm, West Compton, Maiden Newton, Dorchester (Nov. 15).

Flints. Fernhurst, Coed Onn Road, Flint (Nov. 17); Cornist Farm, Flint (Nov. 19).

Kirkcudbright. Dairy Farm, Dougan Hill, Palnackie, Dalbeattie (Nov. 17).

Leics. Sheepy Fields Farm, Sheepy, Atherstone (Nov. 21).

Montgomery. Dolcorsllwn Farm, Aberangell, Machynlleth (Nov. 18).

Salop. Parkfield, The Beeches, Ollerton, Market Drayton (Nov. 16).

Staffs. Bilbrook Farm, Bilbrook Road, Bilbrook Codsall, Wolverhampton (Nov. 15); Studley Farm, Mucklestone, Market Drayton; Ilam Tops Farm, Ilam, Ashbourne (Nov. 18); Gateham Farm, Alstonfield, Ashbourne (Nov. 21).

Wilts. Potterne Park Farm, Potterne, Devizes (Nov. 17).

Yorks. Croft House Farm, Farnley Tyas, Huddersfield (Nov. 19).

Fowl Pest

Bucks. Savay Farm, Denham, Uxbridge (Nov. 19).

Ches. Wall Hill Lane Farm, Astbury, Congleton (Nov. 15).

Essex. 2, Wellington Cottages, Burnt Mill Road, North Benfleet, Wickford (Nov. 15); 316, Cressing Road, Braintree (Nov. 17); Radcliff, Bromford Drive, Wickford; 256, Cressing Road, Braintree; 258, Cressing Road, Braintree; Sunnimeade, Stubb Lane, Braintree (Nov. 20); Fairlawn, Brentwood Road, Bulpham, Upminster (Nov. 21).

Lancs. Mere Lane Farm, Halsall, Ormskirk; East View Farm, Moss Lane, Little Hoole, Preston; Roomfield, Liverpool Road, Longton, Preston (Nov. 15); Marsh House, Station Road, Little Hoole, Preston; 1, Bank Terrace, Gill Lane, Longton, Preston (Nov. 16); Highfield House, Hall Lane, Longton (Nov. 18); Hornbys Farm, Forton Preston (Nov. 19).

Norfolk. 10, Council Houses, Tharston, Norwich; Cutthroat Lane, Yaxham, East Dereham; Aloe Farm, Winfarthing, Diss; Heath Farm, Banham, Norwich (Nov. 15); 3, Market Road, Stokesby, Gt. Yarmouth; El Boden, Tharston, Norwich (Nov. 16); Low Road, North Tuddenham, East Dereham; Valley Farm, Corpusty, Norwich; 3, Foxley Road, Foulsham, East Dereham; The Caravan, Norwich Road, Yaxham, East Dereham; Orwell Cottage, Mattishall, Dereham (Nov. 17); Burgh Road, Gorleston, Gt. Yarmouth; Lower Heath Farm, Banham, Norwich (Nov. 18); Holmlea, Corpusty, Norwich (Nov. 20).

Suffolk. Holly Farm, Barnby, Beccles (Nov. 17).

Sussex. Homestalls, New Pond Hill, Cross-in-Hand, Heathfield (Nov. 18).

Swine Fever

Ches. Wheelwright Farm, Wash Lane, Allostock, Lower Peover, Knutsford (Nov. 18); Crowton Hall, Crowton, Northwich (Nov. 21).

Dorset. Melpash Court, Melpash, Bridport (Nov. 21).

Lanarks. 142, Strathcona Drive, Glasgow (Nov. 18); Laighlyoch Farm, High Blantyre, Blantyre, Glasgow; Muirhouse Farm, Cleghorn; Newmans Farm, Crawford, Abington (Nov. 19); Springbank, Kirkintilloch, Glasgow (Nov. 21).

Lancs. Clayton Bridge Piggeries, Failsworth, Manchester (Nov 18).

Lothian. Seafield Farm, Blackburn, Bathgate (Nov. 18); Poultry Farm, Drumshoreland, Broxburn (Nov. 19).

Norfolk. Church Farm, Foulden, Thetford; Beech House, Gressenhall, Dereham (Nov. 15).

Notts. Shire Farm, Flawforth Lane, Ruddington (Nov. 16).

Renfrew. The Piggery, Tweeniehills, Brookfield, Johnstone (Nov. 18).

Staffs. Gunstone Hall Farm, Codsall, Wolverhampton (Nov. 19); Brooms Bakeries, 420, Cannock Road, Hightown, Hednesford (Nov. 21).

Somerset. Little Bakers, Huntworth, North Petherton, Bridgwater (Nov. 21).

Warwicks. Mill Farm, Long Marston, Stratford-on-Avon (Nov. 21).

Westmorland. Beckmills, Skelsmergh, Kendal (Nov. 16).

Yorks. Ivy Farm, Carlton, Barnsley (Nov. 15); Hill Top Farm, Sutton-in-Craven, Keighley; Jockey Hall Farm, Baldwin Lane, Bradford (Nov. 21).

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement by the B.V.A.

THE VICTORIA VETERINARY BENEVOLENT FUND

Sir,—It is usual to remind members at this time of the year that donations for the Special Gift Account are particularly welcomed by the Fund, for it is from this account that Christmas gifts, so much appreciated by our recipients, are distributed.

May we therefore ask that all members reading this letter will kindly send a donation, however small, marked " special gift account " to the Secretary, V.V.B.F., 9, Red Lion Square, London, W.C.1.

And may we take this opportunity of appealing for new subscribers to the Victoria Veterinary Benevolent Fund, as only by means of a steadily increasing income from this source can the Council continue to give adequate relief to those who are in need of our help.

Please write to the Secretary for a Banker's Order Form. The minimum membership subscription is 10s. 6d. per annum.

Yours faithfully,

H. W. DAWES, *President.*
J. McCUNN, *Hon. Treasurer.*
J. J. DUNLOP, *Hon. Secretary.*

9, Red Lion Square,
London, W.C.1.

November 17th, 1955.

THE PROFESSION AND THE PRESS

Sir,—I write in support of Dr. Wooldridge's reply to the letter written on this subject by Messrs. Kirkwood and Meikle.

A number of members may be pleased that the subject of public relations work is being given ventilation. That this work should receive such criticism may be due to the fact that its very nature requires much of it to be done behind the scenes. It is not possible, therefore, to keep everyone informed of what is happening or of what has happened. This is bound to create the feeling that perhaps things have not been managed as well as they should have been.

No doubt the recent publications in the agricultural press referred to in these letters will have caused annoyance to many members, and some may feel the matter was not dealt with strongly enough. As Dr. Wooldridge explains: "The Officers of the B.V.A. . . . acted quickly." In my opinion this action was that of superb diplomacy, the forceful expression of views being tempered with courtesy and dignity. The net result may be expected to be a considerable improvement in the relations between the profession and the agricultural Press which should reduce the chances of repetition of such incidents.

Whilst the staff appointment referred to by Dr. Wooldridge may assist in the carrying out of B.V.A. policy in these matters, I have no hesitation in expressing the view that the policy, as evidenced by the handling of the incident referred to, is in itself sound and worthy of approval of all members of the profession.

Yours faithfully,

J. H. McGHEE.

46, Coten End,
Warwick.

November 21st, 1955.

Sir,—Recently there has been correspondence in the Press discussing a possible relation between increased pollution of air in the towns by exhaust fumes from diesel engines, and the increased incidence of human carcinoma of the lung. If this theory is correct, surely the town-dwelling dog is exposed to an even greater concentration of these gases at pavement level, and there should be a similar increase in cases of "lung cancer" in dogs. It would be interesting to know whether such a tendency has been observed by urban practitioners. I, myself, can recall only one confirmed case of primary malignant neoplasm in a dog's lung.

Whilst writing to you may I comment on the recently published letter from Messrs. Kirkwood and Meikle? How right they are! It seems to me that we are very poorly served by the B.V.A. in this matter of public relations.

Often I am tempted to reply to real, or implied, insults to our profession in the press. But lack of time, and the fear of committing a breach of professional etiquette, deter me. In any case I feel that the central authority can best do these things, but all too often the opportunity is missed.

Yours faithfully,

LUCY R. ROBINSON.

The Grey House,
Purleigh,
Chelmsford,
Essex.

November 18th, 1955.

Sir,—I would like to congratulate Messrs. Kirkwood and Meikle on their pertinent comments in the last issue. It indicates a sad state of affairs which should be remedied without further delay. I presume the journal concerned was *The Farmer and Stockbreeder* as I have seen nothing of this in the other main farming paper.

As a farmer's son and a veterinary surgeon I can see both sides to the question and I think it is about time that any dissatisfied farmers should see this matter in a clearer light.

I asked my father a year or two ago what his veterinary surgeon charged for a visit pre-war. He told me; and I find my fees to-day for a comparable visit to be less than twice those ruling before 1939. Charges for most other goods and services have gone up by 300 to 400 per cent. since that time.

I think I charge on a par with most other veterinary surgeons and if this is so we as a profession undercharge rather than overcharge.

An auctioneer can earn from the farmer £5 in about two minutes for selling a cow worth 100 guineas. A veterinary surgeon to earn the same amount (or even less) might have to turn out at 2 a.m. on a winter night, travel 10 miles to the farmer, grovel for about two hours on his belly covered in dung and blood endeavouring to calve a prostrate cow or replace a prolapsed womb and then after cleaning up in a bucket of lukewarm water drive 10 miles home again. Probably thrown in for good measure would be an epidural anaesthetic, pessaries, and an injection of penicillin.

I have never known a wealthy veterinary surgeon—they seldom have enough to retire on, usually having to die in harness. I do, on the other hand, know of many implement agents, agricultural merchants, cattle dealers, vegetable wholesalers and others who are very comfortably off and who all take a much greater fee from the farmer than does the veterinary surgeon.

These facts must be put before the public and to do it we must have a first-rate full-time man. No doubt the present Press Officer does his best, but his

work is only a minor part of his job if I understand correctly.

Let us have a man who, when a matter like this arises, can go out into the field, get the views of practitioners, digest them, and then present a balanced answer.

To get such a man we must be prepared to pay—and I should not mind if I had to pay an extra guinea a year on my B.V.A. subscription.

Yours faithfully,

P. H. MERCER.

340, London Road,
Leicester.

November 14th, 1955.

THE OPENING OF CONGRESS

Sir,—I wonder if Mr. Halpin's admirable suggestion, which has received such cordial support from the President of the B.V.A., could be carried a stage further?

In recent years it has been the custom for those attending Congress to foregather on the Sunday prior to the opening. Would it not be possible for an official Congress Service to be held at one of the local churches either in the afternoon or evening before the informal reception organised by the local B.V.A. Division? Many will recall how such a service was held in Westminster Abbey before the start of the last International Veterinary Congress, and I know that from time to time similar services are held for members of the medical profession.

Should this idea commend itself to those responsible for the organisation of the Congress, I feel sure that they would receive the fullest co-operation from the local church authorities.

Yours faithfully,

(Rev.) GEORGE A. WILLIS.

Brantham Rectory,
Manningtree,
Essex.

November 10th, 1955.

THE R.C.V.S. REGISTER

Sir,—The Annual R.C.V.S. Register arrived last week. At what date is the deadline for recording changes of address in this publication? On payment of the annual statutory fee one is asked to give notice of any change of address, but this is not included in the Register until the year *following*, which means that for a period of about 18 months anyone searching for an address in the Register is liable to obtain quite inaccurate information.

A further consequence of this is a stream of redirected letters, parcels, and advertisements arriving at one's new address accompanied by increasingly terse notes from the post office asking one to "kindly notify your correspondents of your change of address."

In fairness to the already hard-pressed post office sorting departments, to commercial houses and their advertising staffs as well as in the general public interest, could not the Royal College include an errata slip giving changes of address to within, say, one month of publication?

Yours faithfully,

P. N. HUMPHREYS.

11, Abbey Road,
Cwmbran,
Monmouthshire.

November 14th, 1955.

[The Register is printed by the same printers as is THE VETERINARY RECORD and other B.V.A. publications. In 1955 the form of the Register was considerably revised; and owing to the extra demands this made on the printer, and as it was felt that THE VETERINARY RECORD should have priority, a certain delay in the publication of the Register had to be accepted. We are advised that changes of address should be notified to the Registrar immediately they are made and not left until the Council election paper (not the Annual Fee notice as mentioned in the letter) is returned. Arrangements have been made for the Register for 1956 and future years to be published in April.—*Editor.*]

DISEASES OF ANIMALS ACT, 1950—GREAT BRITAIN

Summary of Returns of Confirmed Outbreaks of Scheduled (Notifiable) Diseases

Period		Anthrax	Atrophic Rhinitis	Foot-and-mouth	Fowl Pest	Sheep Scab	Swine Fever
1st to 15th October, 1955		31	—	—	24	—	44
Corresponding period in	1954	16	—	—	13	—	40
	1953	14	—	—	16	—	62
	1952	81	—	3	9	—	31
1st January to 15th October, 1955 ...		580	5	6	425	—	1,182
Corresponding period in	1954	237	4	12	615	—	1,202
	1953	519	—	28	753	—	2,352
	1952	738	—	494	180	1	723

TUBERCULOSIS ORDER OF 1938

The number of bovine animals slaughtered under the Tuberculosis Order of 1938 during the period 1st July to 30th September, 1955, was 291.